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Gi. Biogenie
C. J.

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/469,200

DATE: 04/26/2001
TIME: 11:07:05

Input Set : A:\3554.011sequence listing ASCII format.txt
Output Set: N:\CRF3\04262001\I469200.raw

3 <110> APPLICANT: Board of Regents of the University of Oklahoma
 5 <120> TITLE OF INVENTION: NUCLEIC ACID ENCODING HYALURONAN SYNTHASE AND METHODS'
 6 OF USE
 8 <130> FILE REFERENCE: 617022-7
 C--> 10 <140> CURRENT APPLICATION NUMBER: US/09/469,200
 C--> 11 <141> CURRENT FILING DATE: 1999-12-21
 13 <150> PRIOR APPLICATION NUMBER: 60/080,414
 14 <151> PRIOR FILING DATE: 1998-04-02
 16 <150> PRIOR APPLICATION NUMBER: 60/178,851
 17 <151> PRIOR FILING DATE: 1998-10-26
 19 <160> NUMBER OF SEQ ID NOS: 29
 21 <170> SOFTWARE: PatentIn Ver. 2.0
 23 <210> SEQ ID NO: 1
 24 <211> LENGTH: 972
 25 <212> TYPE: PRT
 26 <213> ORGANISM: Pasteurella multocida
 28 <400> SEQUENCE: 1
 29 Met Asn Thr Leu Ser Gln Ala Ile Lys Ala Tyr Asn Ser Asn Asp Tyr
 30 1 5 10 15
 32 Gln Leu Ala Leu Lys Leu Phe Glu Lys Ser Ala Glu Ile Tyr Gly Arg
 33 20 25 30
 35 Lys Ile Val Glu Phe Gln Ile Thr Lys Cys Gln Glu Lys Leu Ser Ala
 36 35 40 45
 38 His Pro Ser Val Asn Ser Ala His Leu Ser Val Asn Lys Glu Glu Lys
 39 50 55 60
 41 Val Asn Val Cys Asp Ser Pro Leu Asp Ile Ala Thr Gln Leu Leu Leu
 42 65 70 75 80
 44 Ser Asn Val Lys Lys Leu Val Leu Ser Asp Ser Glu Lys Asn Thr Leu
 45 85 90 95
 47 Lys Asn Lys Trp Lys Leu Leu Thr Glu Lys Lys Ser Glu Asn Ala Glu
 48 100 105 110
 50 Val Arg Ala Val Ala Leu Val Pro Lys Asp Phe Pro Lys Asp Leu Val
 51 115 120 125
 53 Leu Ala Pro Leu Pro Asp His Val Asn Asp Phe Thr Trp Tyr Lys Lys
 54 130 135 140
 56 Arg Lys Lys Arg Leu Gly Ile Lys Pro Glu His Gln His Val Gly Leu
 57 145 150 155 160
 59 Ser Ile Ile Val Thr Thr Phe Asn Arg Pro Ala Ile Leu Ser Ile Thr
 60 165 170 175
 62 Leu Ala Cys Leu Val Asn Gln Lys Thr His Tyr Pro Phe Glu Val Ile
 63 180 185 190
 65 Val Thr Asp Asp Gly Ser Gln Glu Asp Leu Ser Pro Ile Ile Arg Gln
 66 195 200 205
 68 Tyr Glu Asn Lys Leu Asp Ile Arg Tyr Val Arg Gln Lys Asp Asn Gly
 69 210 215 220
 71 Phe Gln Ala Ser Ala Ala Arg Asn Met Gly Leu Arg Leu Ala Lys Tyr
 72 225 230 235 240

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74 Asp Phe Ile Gly Leu Leu Asp Cys Asp Met Ala Pro Asn Pro Leu Trp
75 245 250 255
77 Val His Ser Tyr Val Ala Glu Leu Leu Glu Asp Asp Asp Leu Thr Ile
78 260 265 270
80 Ile Gly Pro Arg Lys Tyr Ile Asp Thr Gln His Ile Asp Pro Lys Asp
81 275 280 285
83 Phe Leu Asn Asn Ala Ser Leu Leu Glu Ser Leu Pro Glu Val Lys Thr
84 290 295 300
86 Asn Asn Ser Val Ala Ala Lys Gly Glu Gly Thr Val Ser Leu Asp Trp
87 305 310 315 320
89 Arg Leu Glu Gln Phe Glu Lys Thr Glu Asn Leu Arg Leu Ser Asp Ser
90 325 330 335
92 Pro Phe Arg Phe Phe Ala Ala Gly Asn Val Ala Phe Ala Lys Lys Trp
93 340 345 350
95 Leu Asn Lys Ser Gly Phe Phe Asp Glu Glu Phe Asn His Trp Gly Gly
96 355 360 365
98 Glu Asp Val Glu Phe Gly Tyr Arg Leu Phe Arg Tyr Gly Ser Phe Phe
99 370 375 380
101 Lys Thr Ile Asp Gly Ile Met Ala Tyr His Gln Glu Pro Pro Gly Lys
102 385 390 395 400
104 Glu Asn Glu Thr Asp Arg Glu Ala Gly Lys Asn Ile Thr Leu Asp Ile
105 405 410 415
107 Met Arg Glu Lys Val Pro Tyr Ile Tyr Arg Lys Leu Leu Pro Ile Glu
108 420 425 430
110 Asp Ser His Ile Asn Arg Val Pro Leu Val Ser Ile Tyr Ile Pro Ala
111 435 440 445
113 Tyr Asn Cys Ala Asn Tyr Ile Gln Arg Cys Val Asp Ser Ala Leu Asn
114 450 455 460
116 Gln Thr Val Val Asp Leu Glu Val Cys Ile Cys Asn Asp Gly Ser Thr
117 465 470 475 480
119 Asp Asn Thr Leu Glu Val Ile Asn Lys Leu Tyr Gly Asn Asn Pro Arg
120 485 490 495
122 Val Arg Ile Met Ser Lys Pro Asn Gly Gly Ile Ala Ser Ala Ser Asn
123 500 505 510
125 Ala Ala Val Ser Phe Ala Lys Gly Tyr Tyr Ile Gly Gln Leu Asp Ser
126 515 520 525
128 Asp Asp Tyr Leu Glu Pro Asp Ala Val Glu Leu Cys Leu Lys Glu Phe
129 530 535 540
131 Leu Lys Asp Lys Thr Leu Ala Cys Val Tyr Thr Thr Asn Arg Asn Val
132 545 550 555 560
134 Asn Pro Asp Gly Ser Leu Ile Ala Asn Gly Tyr Asn Trp Pro Glu Phe
135 565 570 575
137 Ser Arg Glu Lys Leu Thr Thr Ala Met Ile Ala His His Phe Arg Met
138 580 585 590
140 Phe Thr Ile Arg Ala Trp His Leu Thr Asp Gly Phe Asn Glu Lys Ile
141 595 600 605
143 Glu Asn Ala Val Asp Tyr Asp Met Phe Leu Lys Leu Ser Glu Val Gly
144 610 615 620
146 Lys Phe Lys His Leu Asn Lys Ile Cys Tyr Asn Arg Val Leu His Gly

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147 625 630 635 640
 149 Asp Asn Thr Ser Ile Lys Lys Leu Gly Ile Gln Lys Lys Asn His Phe
 150 645 650 655
 152 Val Val Val Asn Gln Ser Leu Asn Arg Gln Gly Ile Thr Tyr Tyr Asn
 153 660 665 670
 155 Tyr Asp Glu Phe Asp Asp Leu Asp Glu Ser Arg Lys Tyr Ile Phe Asn
 156 675 680 685
 158 Lys Thr Ala Glu Tyr Gln Glu Ile Asp Ile Leu Lys Asp Ile Lys
 159 690 695 700
 161 Ile Ile Gln Asn Lys Asp Ala Lys Ile Ala Val Ser Ile Phe Tyr Pro
 162 705 710 715 720
 164 Asn Thr Leu Asn Gly Leu Val Lys Leu Asn Asn Ile Ile Glu Tyr
 165 725 730 735
 167 Asn Lys Asn Ile Phe Val Ile Val Leu His Val Asp Lys Asn His Leu
 168 740 745 750
 170 Thr Pro Asp Ile Lys Lys Glu Ile Leu Ala Phe Tyr His Lys His Gln
 171 755 760 765
 173 Val Asn Ile Leu Leu Asn Asn Asp Ile Ser Tyr Tyr Thr Ser Asn Arg
 174 770 775 780
 176 Leu Ile Lys Thr Glu Ala His Leu Ser Asn Ile Asn Lys Leu Ser Gln
 177 785 790 795 800
 179 Leu Asn Leu Asn Cys Glu Tyr Ile Ile Phe Asp Asn His Asp Ser Leu
 180 805 810 815
 182 Phe Val Lys Asn Asp Ser Tyr Ala Tyr Met Lys Lys Tyr Asp Val Gly
 183 820 825 830
 185 Met Asn Phe Ser Ala Leu Thr His Asp Trp Ile Glu Lys Ile Asn Ala
 186 835 840 845
 188 His Pro Pro Phe Lys Lys Leu Ile Lys Thr Tyr Phe Asn Asp Asn Asp
 189 850 855 860
 191 Leu Lys Ser Met Asn Val Lys Gly Ala Ser Gln Gly Met Phe Met Thr
 192 865 870 875 880
 194 Tyr Ala Leu Ala His Glu Leu Leu Thr Ile Ile Lys Glu Val Ile Thr
 195 885 890 895
 197 Ser Cys Gln Ser Ile Asp Ser Val Pro Glu Tyr Asn Thr Glu Asp Ile
 198 900 905 910
 200 Trp Phe Gln Phe Ala Leu Leu Ile Leu Glu Lys Lys Thr Gly His Val
 201 915 920 925
 203 Phe Asn Lys Thr Ser Thr Leu Thr Tyr Met Pro Trp Glu Arg Lys Leu
 204 930 935 940
 206 Gln Trp Thr Asn Glu Gln Ile Glu Ser Ala Lys Arg Gly Glu Asn Ile
 207 945 950 955 960
 209 Pro Val Asn Lys Phe Ile Ile Asn Ser Ile Thr Leu
 210 965 970
 213 <210> SEQ ID NO: 2
 214 <211> LENGTH: 2937
 215 <212> TYPE: DNA
 216 <213> ORGANISM: Pasteurella multocida
 218 <400> SEQUENCE: 2
 219 attttttaag gacagaaaat gaatacatta tcacaagcaa taaaaggata taacagcaat 60

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/469,200

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Input Set : A:\3554.011sequence listing ASCII format.txt
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269 <210> SEQ ID NO: 3

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/469,200

DATE: 04/26/2001
TIME: 11:07:05

Input Set : A:\3554.011sequence listing ASCII format.txt
Output Set: N:\CRF3\04262001\I469200.raw

270 <211> LENGTH: 972
271 <212> TYPE: PRT
272 <213> ORGANISM: Pasteurella multocida
274 <400> SEQUENCE: 3
275 Met Asn Thr Leu Ser Gln Ala Ile Lys Ala Tyr Asn Cys Asn Asp Tyr
276 1 5 10 15
278 Glu Leu Ala Leu Lys Leu Phe Glu Lys Ser Ala Glu Thr Tyr Gly Arg
279 20 25 30
281 Lys Ile Val Glu Phe Gln Ile Ile Lys Cys Lys Glu Lys Leu Ser Thr
282 35 40 45
284 Asn Ser Tyr Val Ser Glu Asp Asn Ser Tyr Val Ser Glu Asp Lys Lys
285 50 55 60
287 Asn Ser Val Cys Asp Ser Ser Leu Asp Ile Ala Thr Gln Leu Leu Ile
288 65 70 75 80
290 Ser Asn Val Lys Lys Leu Thr Leu Ser Glu Ser Glu Lys Asn Ser Leu
291 85 90 95
293 Lys Asn Lys Trp Lys Ser Ile Thr Gly Lys Lys Ser Glu Asn Ala Glu
294 100 105 110
296 Ile Arg Lys Val Glu Leu Val Pro Lys Asp Phe Pro Lys Asp Leu Val
297 115 120 125
299 Leu Ala Pro Leu Pro Asp His Val Asn Asp Phe Thr Trp Tyr Lys Asn
300 130 135 140
302 Arg Lys Lys Arg Leu Gly Ile Lys Pro Val Asn Lys Asn Ile Gly Leu
303 145 150 155 160
305 Ser Ile Ile Ile Pro Thr Phe Asn Arg Ser Arg Ile Leu Asp Ile Thr
306 165 170 175
308 Leu Ala Cys Leu Val Asn Gln Lys Thr Asn Tyr Pro Phe Glu Val Val
309 180 185 190
311 Val Ala Asp Asp Gly Ser Lys Glu Asn Leu Leu Thr Ile Val Gln Lys
312 195 200 205
314 Tyr Glu Gln Lys Leu Asp Ile Lys Tyr Val Arg Gln Lys Asp Tyr Gly
315 210 215 220
317 Tyr Gln Leu Cys Ala Val Arg Asn Leu Gly Leu Arg Thr Ala Lys Tyr
318 225 230 235 240
320 Asp Phe Val Ser Ile Leu Asp Cys Asp Met Ala Pro Gln Gln Leu Trp
321 245 250 255
323 Val His Ser Tyr Leu Thr Glu Leu Leu Glu Asp Ile Asp Ile Val Leu
324 260 265 270
326 Ile Gly Pro Arg Lys Tyr Val Asp Thr His Asn Ile Thr Ala Glu Gln
327 275 280 285
329 Phe Leu Asn Asp Pro Tyr Leu Ile Glu Ser Leu Pro Glu Thr Ala Thr
330 290 295 300
332 Asn Asn Asn Pro Ser Ile Thr Ser Lys Gly Asn Ile Ser Leu Asp Trp
333 305 310 315 320
335 Arg Leu Glu His Phe Lys Lys Thr Asp Asn Leu Arg Leu Cys Asp Ser
336 325 330 335
338 Pro Phe Arg Tyr Phe Val Ala Gly Asn Val Ala Phe Ser Lys Glu Trp
339 340 345 350
341 Leu Asn Lys Val Gly Trp Phe Asp Glu Phe Asn His Trp Gly Gly

Please Note:

Us of n and/ r Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

VERIFICATION SUMMARY
PATENT APPLICATION: US/09/469,200

DATE: 04/26/2001
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Input Set : A:\3554.011sequence listing ASCII format.txt
Output Set: N:\CRF3\04262001\I469200.raw

L:10 M:270 C: Current Application Number differs, Replaced Current Application Number
L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:1019 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1025 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1031 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1037 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1043 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1046 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1049 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1052 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1055 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1058 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1061 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1067 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1070 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1073 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1076 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1079 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1091 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1097 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1154 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1193 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:1384 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15
L:1387 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15
L:1390 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15
L:1465 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18
L:1468 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18
L:1486 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:19
L:1514 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:20
L:1532 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:21
L:1565 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:22
L:1651 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29